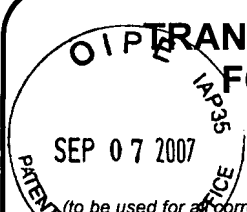
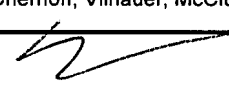
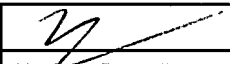


A#2628  
TW

	Application Number	09/823,372	
	Filing Date	March 30, 2001	
	First Named Inventor	Dolan	
	Art Unit	2625	
	Examiner Name	Thompson, James A.	
Total Number of Pages in This Submission	7	Attorney Docket Number	7146.0109

ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) ____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appellant's Reply to Examiner's Answer) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Return postcard
<div style="border: 1px solid black; padding: 5px;"> <b>Remarks</b> </div>		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm	Chernoff, Vilhauer, McClung & Stenzel, L.L.P.		
Signature			
Printed Name	Kevin L. Russell		
Date	September 5, 2007	Reg. No.	38,292

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.			
Signature			
Typed or printed name	Kevin L. Russell	Date	September 5, 2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: Dolan, et al. Group Art Unit: 2625  
Serial No.: 09/823,372 Examiner: Thompson, James A.  
Filed: March 30, 2001 Customer No.: 55648  
Title: ROBUST DOCUMENT BOUNDARY DETERMINATION

**APPELLANT'S REPLY**

Chernoff, Vilhauer, McClung and Stenzel, L.L.P.  
601 SW Second Avenue, Suite 1600  
Portland, Oregon 97204

September 5, 2007

Mail Stop APPEAL BRIEF-PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This reply is in response to the Examiner's Answer in the captioned application  
dated July 19, 2007.

## **STATUS OF CLAIMS**

### **A. TOTAL NUMBER OF CLAIMS IN THE APPLICATION**

There are 27 claims currently pending in the application.

### **B. STATUS OF ALL CLAIMS**

Claims canceled: 1, 16, 19, 29-33, and 35-39

Claims withdrawn: None

Claims pending: 2-15, 17, 18, 20-28, 34, and 40

Claims allowed: None

Claims objected to: None

Claims rejected: 2-15, 17, 18, 20-28, 34, and 40.

### **C. CLAIMS ON APPEAL**

Claims 2-15, 17, 18, 20-28, 34, and 40 are on appeal.

A copy of the claims on appeal is set forth in the Claims Appendix to this Brief.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The grounds of rejection presented for review are: (1) whether claims 2, 3, 12, 14, 15, 17, 18, 20, 21, 24, 25, 28, 34, and 40 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over the combination of Ichihara, U.S. Patent No. 5,198,853 in view of Feng, U.S. Patent No. 6,046,828; (2) whether claims 4-8 are unpatentable under 35 U.S.C. §103(a) in view of the combination of Ichihara and Feng and in further view of Yamanishi, U.S. Patent No. 5,696,595; and (3) whether claims 9-11, 13, 22, 23, 26, and 27 are unpatentable under 35 U.S.C. §103(a) in view of the combination of Ichihara and Feng and in further view of Kowalski, U.S. Patent No. 5,778,104.

## ARGUMENT

The question to be decided in this appeal is whether the combination of references cited by the Examiner teach the use of a statistical measure to automatically calculate the value of a variable threshold used to detect the boundary of a shadow of a document on document backing. The primary reference, though disclosing a variable threshold, indicates that the threshold is manually adjustable. The Examiner does not dispute this fact.

The secondary reference, Feng, discloses that statistical measures, namely the mean luminance and the standard deviation of luminance read by a scanner passing over a document and the backing to the document, change significantly at the boundary of the document and the backing, and thus is detectable. *At no point does Feng disclose a variable threshold used in detecting this upward step of the standard deviation of luminance or the mean of luminance.* See, e.g. Feng at col. 5 line 11 to col. 6 line 4. The Examiner appears to miss this point. See Examiner's answer at p. 12 lines 1-5 (asserting that Feng discloses that a *statistically* significant step in standard deviation indicates a boundary). In fact, Feng mentions nothing about detecting a *statistically* significant gap; Feng simply discloses that the gap is significant, i.e. it better lends itself to detection through a *fixed* threshold than does the mean luminance. See Feng at col. 6 lines 5-26.

The applicant argued during prosecution that Feng failed to disclose a variable threshold used to detect the boundaries of a document and its backing. The Examiner's response was to simply assert that Feng disclosed "a variable luminance threshold value, automatically calculated." The applicant noted that this response didn't actually dispute the applicant's point, i.e. it never affirmatively asserted that Feng's automatically calculated variable luminance threshold value was used to detect the significant upward step in either the mean or standard

deviation of luminance. Upon a review of the portion of Feng to which the Examiner was referring, the applicant's suspicions were correct: Feng merely disclosed a "variable threshold used in determining whether a pixel is black or white, and, whether the document covers the edge of the scanner." *See* Feng at col. 6 lines 53-57.

In any event, the Examiner seems to miss the applicant's point with respect to the uselessness of Feng's standard deviation in detecting the boundary between a *shadow* of a document and a backing. Feng's system assumes that a document is moved over a stationary sensor such that the CCD array, during times when the document is not being illuminated, is sensing the *exact same area of the backing*. This forms the basis for Feng's assumption that the standard deviation of luminance of the backing "reflects only sensor noise." The document, however, is moving with respect to the sensor, hence the luminance changes dramatically as text is scanned (or dust, stray marks, lines on a legal pad, etc.) *None of these document features make it to a shadow of the document*. Since a shadow of a document can be assumed to have an almost uniform luminance, the standard deviation of sensed luminance can also be assumed to be solely a function of sensor noise, meaning that the system of Feng, though able to detect the point when a *document* passes over the CCD, is incapable of detecting the prior (or later) point in time when the document's *shadow* passes over the CCD.

The Examiner responds by arguing that, if this were true, then the variable threshold of Ichihara (note that now the Examiner fails to argue that Feng discloses a variable threshold used to detect a document boundary) would be pointless. The Examiner is confusing variables. Ichihara's variable threshold is used to detect a *step function* in the *actual luminance* values. A user adjusts the threshold to take into consideration very clean documents versus very dirty documents, e.g. The applicant never argued that the *actual luminance* is constant as a shadow of

a document passes over a sensor relative to a backing. Applicant argues that the standard deviation does not step up, i.e. Feng's statistical measure is of no applicability to the detection of a boundary between a shadow and a backing.

To reiterate the point – absent a showing that the statistical measures disclosed by Feng are useful in distinguishing a boundary between a shadow of a document and a backing for that document, the Examiner's rejection fails. The applicant has coherently argued that the statistical measures employed by Feng technically could not do so, because the statistical measures used by Feng are only capable of detecting the upward step as the boundary of the actual document passes over the sensor. In fact, given that Ichihara utilizes a scanner with a platen for holding the document stationary with respect to the backing, while the scanner moves, it is difficult to imagine that any utility would arise from combining the teachings of Ichihara and Feng; since now the CCD array is moving with respect to the backing, the entire premise of Feng's boundary detection method, i.e. a fixed relationship between a CCD and a sensor, is invalid.

For each of these reasons, the applicant submits that the Examiner failed to show that the limitation of "a variable luminance threshold value automatically calculated using one or more statistical measures and that causes detection of shadows cast by said object on said backing" is obvious in view of the cited prior art.

Respectfully submitted,



Kevin L. Russell  
Reg. No. 38,292  
Telephone: (503) 227-5631